IN THE CLAIMS

The pending claims are as follows:

1-46. Canceled

47. (Previously Presented) A circuit including a compensation branch for reducing second order non-linear distortion in a receiver using a feed-forward technique, the compensation branch comprising:

a squaring circuit for receiving a received RF signal provided to an input of a mixer in the receiver and generating a squared version of the received RF signal;

a gain stage for receiving the squared version of the received RF signal and reproducing second order nonlinear distortion in the receiver; and

an output coupling circuit for coupling the reproduced second order nonlinear distortion to an output of the receiver to generate a down-converted baseband signal characterized with reduced second order nonlinear distortion.

48. (Previously Presented) The circuit of claim 47, wherein the output coupling circuit couples the reproduced second order nonlinear distortion to an output of the mixer.

49. (Previously Presented) The circuit of claim 47, wherein the receiver is a Zero-IF direct down conversion receiver.

50. (Previously Presented) The circuit of claim 47, wherein the receiver is a low IF direct down conversion receiver.

51. (Previously Presented) The circuit of claim 47, wherein the output coupling circuit is an adder.

52. (Previously Presented) The circuit of claim 47, wherein the squaring circuit is part of the mixer, and wherein the gain stage receives the squared version of the received RF signal from the mixer.

53. (Previously Presented) The circuit of claim 48, wherein the squaring circuit is part of the mixer, and wherein the gain stage receives the squared version of the received RF signal from the mixer.

54. (Previously Presented) The circuit of claim 49, wherein the squaring circuit is part of the mixer, and wherein the gain stage receives the squared version of the received RF signal from the mixer.

55. (Previously Presented) The circuit of claim 50, wherein the squaring circuit is part of the mixer, and wherein the gain stage receives the squared version of the received RF signal from the mixer.

56. (Previously Presented) The circuit of claim 51, wherein the squaring circuit is part of the mixer, and wherein the gain stage receives the squared version of the received RF signal from the mixer.

57. (Previously Presented) The circuit of claim 47, wherein the receiver defines a receiver path and the compensation branch operates to provide feed forward second-order non-linear distortion reduction to the receiver path.

58. (Previously Presented) The circuit of claim 48, wherein the receiver defines a receiver path and the compensation branch operates to provide feed forward second-order non-linear distortion reduction to the receiver path.

59. (Previously Presented) The circuit of claim 49, wherein the receiver defines a receiver path and the compensation branch operates to provide feed forward second-order non-linear distortion reduction to the receiver path.

60. (Previously Presented) The circuit of claim 57, whereby the non-linear distortion reduction does not introduce other non-linear distortion in the receiver path.

61. (Previously Presented) The circuit of claim 50, wherein the receiver defines a receiver path and the compensation branch operates to provide feed forward second-order non-linear distortion reduction to the receiver path.

62. (Previously Presented) The circuit of claim 59, whereby the non-linear distortion reduction does not introduce other non-linear distortion in the receiver path.

63. (Previously Presented) The circuit of claim 47, further comprising means for adjusting the gain stage to permit calibration thereof.

64. (Previously Presented) The circuit of claim 63, wherein the means for adjusting enables factory calibration of a mobile device including the circuit and the receiver.

65. (Previously Presented) The circuit of claim 63, wherein the means for adjusting includes circuitry for providing self-contained auto-calibration.

66. (Previously Presented) The circuit of claim 49, further comprising means for adjusting the gain stage to permit calibration thereof.

67. (Previously Presented) The circuit of claim 66, wherein the means for adjusting enables factory calibration of a mobile device including the circuit and the receiver.

68. (Previously Presented) The circuit of claim 66, wherein the means for adjusting includes circuitry for providing self-contained auto-calibration.

69. (Previously Presented) The circuit of claim 50, further comprising means for adjusting the gain stage to permit calibration thereof.

70. (Previously Presented) The circuit of claim 69, wherein the means for adjusting enables factory calibration of a mobile device including the circuit and the receiver.

71. (Previously Presented) The circuit of claim 69, wherein the means for adjusting includes circuitry for providing self-contained auto-calibration.

72. (Previously Presented) The circuit of claim 47, wherein the circuit and receiver are on a single integrated circuit.

73. (Previously Presented) The circuit of claim 72, wherein the integrated circuit is adapted to be coupled to a mobile station modem (MSM) for signal processing of the down-converted baseband signal.

74. (Previously Presented) The circuit of claim 73, wherein the integrated circuit and MSM are further adapted to be used with a transmitter, the integrated circuit being responsive to a test signal generated under MSM control to provide calibration.

75. (Previously Presented) The circuit of claim 49, wherein the circuit and receiver are on a single integrated circuit.

76. (Previously Presented) The circuit of claim 75, wherein the integrated circuit is adapted to be coupled to a mobile station modem (MSM) for signal processing of the down-converted baseband signal.

77. (Previously Presented) The circuit of claim 76, wherein the integrated circuit and MSM are further adapted to be used with a transmitter, the integrated circuit being responsive to a test signal generated under MSM control to provide calibration.

78. (Previously Presented) The circuit of claim 50, wherein the circuit and receiver are on a single integrated circuit.

79. (Previously Presented) The circuit of claim 78, wherein the integrated circuit is adapted to be coupled to a mobile station modem (MSM) for signal processing of the down-converted baseband signal.

80. (Previously Presented) The circuit of claim 79, wherein the integrated circuit and MSM are further adapted to be used with a transmitter, the integrated circuit being responsive to a test signal generated under MSM control to provide calibration.

81. (Previously Presented) An integrated circuit having a receiver and a distortion reduction circuit for reducing second order non-linear distortion in the receiver using a feed-forward technique, the distortion reduction circuit comprising:

a squaring circuit for receiving a received RF signal provided to an input of a mixer in the receiver and generating a squared version of the received RF signal;

a gain stage for receiving the squared version of the received RF signal and reproducing second order nonlinear distortion in the receiver; and

an output coupling circuit for coupling the reproduced second order nonlinear distortion to an output of the receiver to generate a down-converted baseband signal characterized with reduced second order nonlinear distortion.

82. (Previously Presented) The integrated circuit of claim 81, wherein the receiver is one of a Zero-IF and a low IF direct down conversion receiver.

83. (Previously Presented) The integrated circuit of claim 82, further including means for adjusting the gain stage to permit calibration thereof.

84. (Previously Presented) The integrated circuit of claim 83, wherein the means for adjusting enables factory calibration of a mobile device including the integrated circuit.

85. (Previously Presented) The integrated circuit of claim 83, wherein the means for adjusting includes circuitry for providing self-contained auto-calibration.

86. (Previously Presented) A circuit for reducing second order non-linear distortion in a receiver using a feed-forward technique, the circuit comprising:

a squaring circuit for receiving a received RF signal provided to an input of a mixer in the receiver and generating a squared version of the received RF signal;

a gain stage for receiving the squared version of the received RF signal and generating unwanted second order nonlinear distortion in the receiver; and

an output coupling circuit for subtracting the unwanted second order nonlinear distortion from an output of the receiver to generate a down-converted baseband signal characterized with reduced second order nonlinear distortion.

87. (Previously Presented) The circuit of claim 86, wherein the receiver is one of a Zero-IF and a low IF direct down conversion receiver.

88. (Previously Presented) The circuit of claim 87, further comprising

means for adjusting the gain stage to permit calibration thereof.

89. (Previously Presented) The circuit of claim 88, wherein the means for adjusting enables factory calibration of a mobile device including the circuit and the receiver.

90. (Previously Presented) The circuit of claim 88, wherein the means for adjusting includes circuitry for providing self-contained auto-calibration.

91. (Previously Presented) A method of reducing second order non-linear distortion in a receiver using a feed-forward technique, the method comprising:

generating a squared version of a received RF signal provided to an input of a mixer in the receiver;

reproducing unwanted second order nonlinear distortion in the receiver based on the squared version of the received RF signal; and

subtracting the unwanted second order nonlinear distortion from an output of the receiver to generate a down-converted baseband signal characterized with reduced second order nonlinear distortion.

92. (Previously Presented) The method of claim 91, further comprising

calibrating a gain used to reproduce the unwanted second order nonlinear distortion.

93. (Previously Presented) The circuit of claim 47, wherein the squared version of the received RF signal is internally generated by the mixer.

94. (Previously Presented) The circuit of claim 47, wherein the mixer comprises cross-coupled transistors, wherein the squared version of the received RF signal is internally generated at emitters of the transistors, and wherein the reproduced second order nonlinear distortion is coupled to collectors of the transistors.

95. (Previously Presented) The circuit of claim 47, wherein the gain stage generates the reproduced second order nonlinear distortion with a variable gain.

96. (Previously Presented) The circuit of claim 95, wherein the variable gain is temperature dependent.

97. (Previously Presented) The circuit of claim 47, wherein the gain stage comprises a digital-to-analog converter (DAC) providing a programmable gain for the reproduced second order nonlinear distortion.

98. (Previously Presented) An integrated circuit comprising a distortion reduction circuit for reducing second order non-linear distortion in a receiver based on feed-forward distortion cancellation, the distortion reduction circuit comprising:

a squaring circuit for receiving a received RF signal provided to an input of a mixer in the receiver and generating a squared version of the received RF signal;

a gain stage for receiving the squared version of the received RF signal and reproducing second order nonlinear distortion in the receiver; and

an output coupling circuit for coupling the reproduced second order nonlinear distortion to an output of the receiver to generate a down-converted baseband signal characterized with reduced second order nonlinear distortion.